

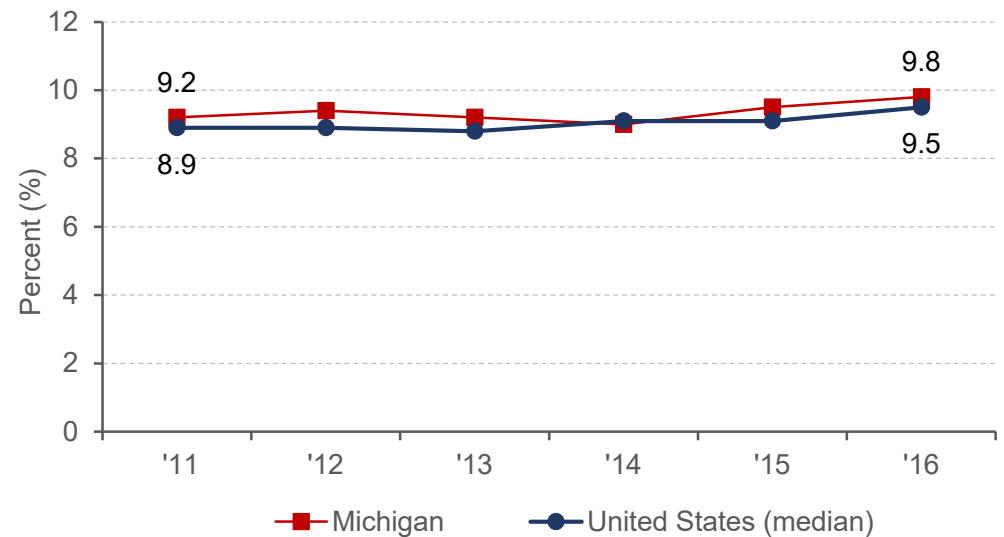
## Fast Facts about Diabetes in Michigan

- In 2016, one in 10 Michigan adults 18 years and older were diagnosed with diabetes – 870,000 people.<sup>1,2,a</sup>
- The age-adjusted diabetes prevalence (percentage) estimate among Michigan adults was comparable between 9.2% in 2011 and 9.8% in 2016 (Fig 1) with no evidence of change over time.<sup>1,b,c</sup>
- In the United States (US), the diabetes prevalence median was 8.9% in 2011 and 9.5% in 2016.<sup>3</sup>
- According to the Centers for Disease Control and Prevention (CDC), approximately **23.8%** of US adults with diabetes were not aware or did not report having diabetes. That would be approximately 220,000 Michigan adults.<sup>2,4</sup>
- Michigan ranked the **20<sup>th</sup>** highest state in the country in diabetes prevalence among adults 18 years and older in 2016.<sup>3,d</sup>
- In 2016, diabetes was ranked the **seventh** leading cause of death in Michigan.<sup>5</sup>

## Michigan Diagnosed Diabetes Prevalence

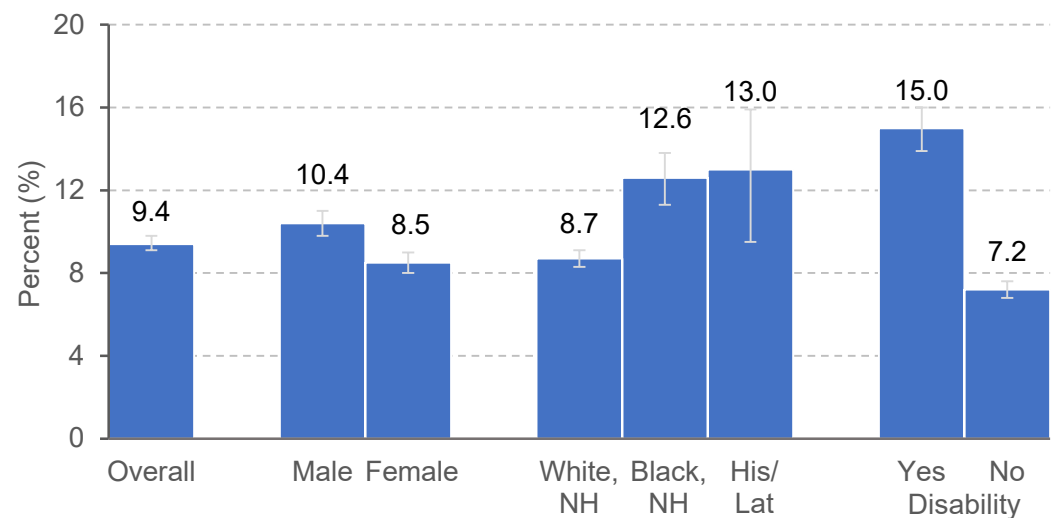
- The estimated diabetes prevalence was 2.9% among adults 18-44 years, 13.5% among those 45-64 years, and 22.6% among 65 years and older (data not shown).<sup>1,e</sup>
- Figure 2 shows age-adjusted diabetes prevalence estimates by selected characteristics.<sup>1,b,e,f</sup>
  - Males had a higher prevalence compared to that of females.
  - The prevalence among non-Hispanic Black adults was **1.4 times** the prevalence among non-Hispanic White adults.
  - The prevalence among adults with a disability was **two times** the prevalence among those without a disability.

Figure 1. Diabetes among Adults (18 years and older) for Michigan and US (2011-2016)\*



\*Age-adjusted Prevalence Estimates; See Notes b and c  
Source: Behavioral Risk Factor Surveillance System (2011-2016) and Michigan Behavioral Risk Factor Surveillance System (2011-2016)

Figure 2. Diabetes among Michigan Adults (18 years and older) for Selected Characteristics\*

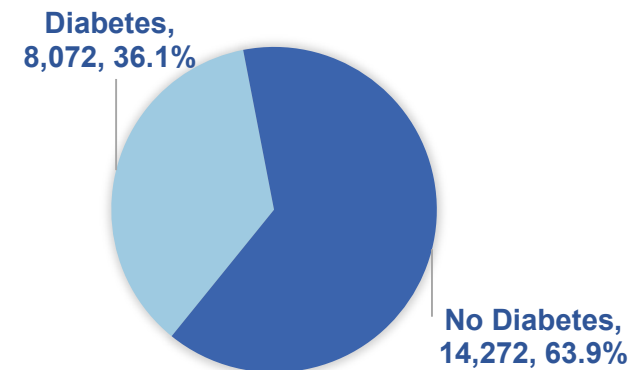


\*Age-adjusted Prevalence Estimates; NH – non-Hispanic; His/Lat – Hispanic/Latinx; See Notes b, e, and f  
Source: MIBRFSS 2014-2016 combined and 2015-2016 combined (See Note f)

## Diabetes-Related Complications

- Among Michigan adults 18 years and older, there were 302,003 hospitalizations with any mention of diabetes in 2016.<sup>6,8</sup>
- In 2016, there were 2,681 deaths where diabetes was listed as the leading cause of death.<sup>5</sup>
- Among adult hospitalizations, where diabetes was the secondary diagnosis, 11,804 were stroke-related, and 62,310 were cardiovascular disease-related in 2016.<sup>6,8</sup>
- In 2014, there were 2,081 lower-extremity amputation procedures for Michigan patients with diabetes as a primary diagnosis.<sup>6,8</sup>
- In 2015, 15.3% of Michigan adults with diabetes reported ever being told that they had diabetes-related retinopathy.<sup>1</sup>
- In 2015, 36.1% of Michigan adults who reported having end-stage renal disease (ESRD) also had diabetes (Fig 3). In addition, there were 156.0 new ESRD cases per 1,000,000 persons with diabetes in 2015.<sup>7</sup>

Figure 3. End-Stage Renal Disease by Diabetes Status



Source: US Renal Data System (2015)

## Comorbidities & Controllable Factors

- Table 1 provides age-adjusted comorbidity prevalence estimates, as well as estimates for controllable factor estimates by those with and without diabetes.<sup>1,b,e,h</sup>
  - The prevalences of high blood pressure and obesity among those with diabetes were nearly **two times** the prevalence among those without diabetes.
  - The prevalence of high cholesterol among those with diabetes was **1.8 times** the prevalence among those without diabetes.

Table 1. Comorbidities and Controllable Factors among Michigan Adults (18 years and older) by Diabetes Status\*

Comorbidity/Factor	Diabetes	No Diabetes
Current Smoker	20.3% (16.4, 24.9)	22.0% (21.3, 22.8)
High Blood Pressure	53.5% (48.6, 58.2)	28.5% (27.7, 29.3)
High Cholesterol	55.9% (50.5, 61.1)	30.5% (29.6, 31.5)
No Exercise	36.2% (34.0, 38.2)	23.8% (23.1, 24.5)
Obese	56.4% (54.3, 58.5)	28.1% (27.4, 28.9)

95% Confidence Interval in parentheses

\*Age-adjusted Prevalence Estimates

Source: MIBRFSS 2014-2016 combined; MIBRFSS 2013 and 2015 combined (See Note h)

## Self- Management

- Adults with diagnosed diabetes reported practicing self-management behavior: 88.2% had an annual check-up, 91.3% reported taking their high blood pressure medication in the past year, and 97.3% reported ever having a cholesterol screening.<sup>1,h</sup>

For more information about diabetes prevention and diabetes self-management programs, visit [www.cdc.gov/diabetes/prevention](http://www.cdc.gov/diabetes/prevention) and [www.michigan.gov/diabetes](http://www.michigan.gov/diabetes).

## Notes

- a. The number of Michigan adults 18 years and older with diagnosed diabetes was estimated using the unadjusted prevalence estimate (11.2%) based on 2016 Michigan Behavioral Risk Factor Surveillance System (MiBRFSS) and the bridge-race method population estimate for 2016. Rounded to 100s.
- b. Reported age-adjusted prevalence estimates were adjusted to the 2000 US Standard Population using seven age groups (18–24, 25–34, 35-44, 45-54, 55-64, 65-75, and 75+ years).
- c. Orthogonal polynomial trend analysis was conducted on 2011 to 2016 MiBRFSS data. There was no evidence of a linear or quadratic change in the estimated diabetes prevalence over the six years, p value of < 0.05.
- d. State rankings were based on age-adjusted diabetes prevalence estimates from 2016.
- e. Statistically significant differences between estimates reported when the 95% confidence intervals of the estimates did not overlap (e.g., diabetes prevalence estimates among non-Hispanic Black and non-Hispanic White adults).
- f. In 2015, the Centers for Disease Control and Prevention changed the disability definition based on five questions. Adult respondents (18 years and older) were classified as having a disability if they answered “yes” to at least one of the following: a visual impairment, deaf or difficulty hearing, difficulty concentrating, remembering, or making decisions, difficulty walking or climbing stairs, difficulty dressing or bathing, or difficulty doing errands alone.
- g. Hospitalizations were defined using ICD-10-CM diagnosis codes. Diabetes as primary diagnosis was principal diagnosis codes E10, E11, and E13, diabetes as secondary diagnosis was any listing, other than principal, with codes E10, E11, and E13, and diabetes any mention was any listing with diagnosis codes E10, E11, and E13. Stroke-related hospitalization was stroke as primary diagnosis listed as principal diagnosis I60-I69. Cardiovascular related hospitalization was cardiovascular disease as primary diagnosis listed as principal diagnosis I series excluding hypertension and hypertensive disease (I10-I15) and diabetes as secondary diagnosis. Lower-extremity amputation was a medical procedure using ICD-9-CM procedure codes (84.10-84.19) and diabetes as primary diagnosis using principal ICD-9-CM diagnosis code (250.xxx).
- h. MiBRFSS data from 2013 and 2015 were combined to determine estimated prevalence of high blood pressure, taking high blood pressure medication, high cholesterol, and cholesterol screening.

## Reference

1. Michigan Behavioral Risk Factor Surveillance System, Lifecourse Epidemiology and Genomics Division, Michigan Department of Health and Human Services.
2. United States Department of Health and Human Services (US DHHS), Centers for Disease Control and Prevention, National Center for Health Statistics (NCHS), Bridged-Race Population Estimates. Available on [CDC WONDER Online Database](#). [Accessed on Aug 15, 2018.]
3. Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Population Health. BRFSS Prevalence & Trends Data [online]. 2015. [accessed Oct 20, 2018]. URL: [BRFSS Prevalence and Trends Data](#).
4. Centers for Disease Control and Prevention. National Diabetes Statistics Report, 2017. Atlanta, GA: Centers for Disease Control and Prevention, US Dept of Health and Human Services; 2017.
5. Vital Statistics, Division for Vital Records and Health Statistics, Michigan Department of Health and Human Services.
6. Michigan Resident Inpatient Files created by the Division for Vital Records and Health Statistics, Michigan Department of Health and Human Services, using data from the Michigan Inpatient Database obtained with permission from the Michigan Health and Hospital Association Service Corporation (MHASC).
7. US Renal Data System, USRDS 2017 Annual Data Report: Atlas of Chronic Kidney Disease and End-Stage Renal Disease in the United States, National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases, Bethesda, MD, 2017.